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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/553,220	04/20/2000	ZINE-EDDINE BOUTAGHOU	169.12-0433	5021

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EXAMINER

CASTRO, ANGEL A

ART UNIT	PAPER NUMBER
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2653

DATE MAILED: 01/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/553,220

Applicant(s)

BOUTAGHOU ET AL.

Examiner

Angel A. Castro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 12-13 is/are rejected.
- 7) ☒ Claim(s) 7-11 and 14-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

This Office Action is in response to a communication filed on 9/25/2002.

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 2-6 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Kant et al (U.S. Pat. 6,297,936).

Regarding claim 2, Kant discloses a microactuator (figures 2-4) for selectively altering a position of a transducing head carried by a slider 44 in a disc drive system with respect to a track of a rotatable disc having a plurality of concentric tracks, the disc drive system having an actuator arm, the microactuator comprising a load beam 18 attached to a distal end of the actuator arm, the load beam having a first section; a flexure 42 for supporting the slider

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carrying the transducing head; and a bending motor 52a, 52b, 52c, 52d attached between the first section of the load beam and the flexure, the bending motor being deformable in response to a control signal applied thereto (column 3, lines 9-36).

Regarding claim 13, Kant discloses a disc drive suspension (figures 2-4) and comprising an actuator arm having a proximal end and a distal end; a load beam 18 attached to the distal end of the actuator arm, the load beam having a mounting region at a proximal end, a head suspension near a distal end of the load beam, and a flexible region between the mounting region and the head suspension (shown in figure 2, but not labeled); a flexure 42 configured to support a transducing head; a beam 53a, 53b connected between the head suspension and the flexure; and a bending motor 52a-52d attached to a top surface of the beam such that the beam supports the bending motor and transforms a force on the flexure into a compressive load on the bending motor, the bending motor being deformable in response to a control signal applied thereto.

Regarding claim 3, Kant shows a flexible beam 53a, 53b connected between the first section of the load beam and the flexure, and wherein the bending motor is attached to the flexible beam.

Regarding claim 4, Kant shows that the bending motor is attached to a top surface of the flexible beam 53a, 53b such that the flexible beam supports the bending motor and transforms a force on the flexure into a compressive load on the bending motor.

Regarding claims 5, Kant discloses that the bending motor is constructed from a piezoelectric material (column 2, line 43).

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Regarding claim 6, Kant shows that the load beam has a second section 56 connected to the flexure 42, and further wherein a flexible beam 53a, 53b is connected between the first section and the second section of the load beam and the bending motor is attached to the flexible beam.

3. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Hawwa et al (U.S. Pat. 6,108,175).

Regarding claim 1, Hawwa et al discloses a microactuator (figures 2-5) for selectively altering a position of a transducing head 25 carried by a slider 24 in a disc drive system with respect to a track of a rotatable disc having a plurality of concentric tracks, the disc drive system having an actuator arm attached to a load beam 16, 22 for supporting the slider over the rotatable disc, the load beam having a stationary region 16 and a moving region 22, the microactuator comprising means 46b (figure 3) for flexibly coupling the stationary region of the load beam to the moving region of the load beam; and means 46a, 46b, for selectively altering a position of the slider with respect to the rotatable disc, the means extending from the distal end of the stationary region to a proximal end of the moving region 22 generally along a longitudinal centerline of the stationary region.

Regarding claim 2, Hawwa discloses a microactuator (figures 2-5) for selectively altering a position of a transducing head 25 carried by a slider 24 in a disc drive system with respect to a track of a rotatable disc having a plurality of concentric tracks, the disc drive system having an actuator arm, the microactuator comprising a load beam 16, 22 attached to a distal end of the actuator arm, the load beam having a first section 16; a flexure for supporting the slider carrying the transducing head; and a bending motor 46 attached between the first

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section of the load beam and the flexure, the bending motor being deformable in response to a control signal applied thereto (column 2, lines 53-58).

Regarding claim 3, Hawwa shows a flexible beam 46b (figure 3) connected between the first section of the load beam and the flexure, and wherein the bending motor is attached to the flexible beam.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kant et al in view of Fan et al (U.S. Pat. 5,364,742).

Regarding claim 12, Kant does not disclose that the bending motor has a length to width ratio of at least about ten. Fan discloses a microactuator (figures 4-5) having an aspect ratio of 10:1 (column 6, line 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the microactuator of Kant with the bending motor having a length to width ratio of at least ten as taught by Fan. The rationale is as follows:

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One of ordinary skill in the art would have been motivated to provide the microactuator of Kant with the claimed ratio for the bending motor as taught by Fan, as doing this would allow the microactuator to have very thin features (column 6, line 8).

*Allowable Subject Matter*

6. Claims 7-11, 14-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Response to Arguments*

7. Applicant's arguments filed 9/25/2002 have been fully considered but they are not persuasive.

Applicant asserts in page 4, last paragraph and page 5, first paragraph:

“Kant et al. does not disclose, teach or suggest the structure recited in claim 2. As discussed and shown above in FIGS. 2, 4 and 5 of Kant et al., the microactuator of Kant et al. is integrally formed in the load beam. The flexure is attached by mounting points 54a, 54b, and 54c to a deflectable portion of the load beam at points 64a, 64b and 64c. The microactuator of Kant et al. is formed as part of the load beam and operable to deflect the deflectable portion of the load beam to finely position the flexure. Claim 2 of the present application recites a bending motor attached between a first section of the load beam and the flexure. The bending motor is deformable in response to a control signal applied thereto to move the flexure supporting the slider carrying the transducing head with respect to tracks of a rotatable disc. The flexure is not attached to a deflectable portion of a load beam, and more importantly the load beam itself is not deflectable. In the microactuator disclosed in claim 2, the flexure is not attached directly to the load beam.”

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The examiner respectfully points out that the load beam 34 of the present application (figure 3) comprises several sections that include mounting region 38, flexible section 40a, 40b, section 44 and flexible section 48. The bending motor 32 is attached to flexible section 48. Therefore, both structures (Kant and the present application) are equivalent and the rejection is proper.

Applicant asserts in page 5, last paragraph and page 6, first paragraph:

“Claim 13 of the present application recites a disc drive suspension. The disc drive suspension includes an actuator arm having a proximal end and a distal end. A load beam is attached to the distal end of the actuator arm. The load beam has a mounting region at a proximal end, a head suspension near a distal end of the load beam, and a flexible region between the mounting region and the head suspension. A flexure is configured to support a transducing head. A beam is connected between the head suspension and the flexure. A bending motor is attached to a top surface of the beam such that the beam supports the bending motor and transforms a force on the flexure into a compressive load on the bending motor, the bending motor being deformable in response to a control signal applied thereto.

Kant et al. does not disclose, teach or suggest the structure recited in claim 13. As discussed above with respect to claim 2 and shown in FIG. 4 of the Kant et al. patent, the microactuator of Kant et al. is integrally formed in the load beam and the flexure is attached to a deflectable portion of the load beam (which forms part of the microactuator). Kant et al. does not disclose a beam connected between the head suspension of the load beam and the flexure. In addition, the microactuator of Kant et al. is not attached to a top surface of a beam extending between the head suspension and the flexure. Accordingly, the rejection of claim 13 under 35 U. S. C. § 102(e) should be withdrawn.”

The examiner points out that the present application comprises “a deflectable portion of the load beam” as shown in figure 3, element 48 that is equivalent to the structure of figure 4 of the Kant et al patent.

Applicant asserts, from the last paragraph in page 6, to the second paragraph in page 8 that the claimed microactuator means of claim 1 is recited in means-plus-function format and as



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a result, the Office action fails to show how the microactuator of Hawwa et al is equivalent to the structure disclosed in the present specification.

However, the Examiner maintains that the microactuator of Hawwa et al is a structural equivalent to that of the instant specification. Specifically, The United States Patent and Trademark Office has issued guidelines for the examination of claims written in means-plus function form. See Supplemental Examination Guidelines for Determining the Applicability of 35 U.S.C. 112, P6, 65 FR 38510, Federal Register Vol. 65, No. 120, June 21, 2000, herein after referred to as the "Guidelines." Part III of these Guidelines set forth requirements for establishing a prima facie case of equivalence by the Examiner. These involve whether or not the prior art element performs the same function, whether the prior art element is excluded by an explicit definition in the specification for equivalents, and whether the prior art element is in fact an equivalent of the means-plus-function limitation in the claim. In the instant case, 1) the prior art reference to Hawwa et al performs the function specified in the claim (i.e. actuation); 2) the actuator of Hawwa et al is not excluded by any explicit definition provided in the instant specification for an equivalent; and 3) the actuator of Hawwa et al is an equivalent of the microactuator means set forth in claim 1 in that the prior art to Hawwa et al performs the identical function specified in the claim (selectively altering a position of the slider with respect to the rotatable disc) in substantially the same way (microactuation) while producing the same results (micro positioning of the transducer over the disc). Therefore, the rejection is still seen as proper and has been maintained.

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*Conclusion*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Koganezawa et al (U.S. Pat. 6,327,120) discloses an actuator using piezoelectric element and head positioning mechanism using the actuator.
9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

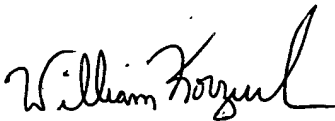
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angel A. Castro whose telephone number is 703-308-8435. The examiner can normally be reached on Monday through Thursday, 8 AM to 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R Korzuch can be reached on 703-305-6137. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-308-8435 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Angel Castro, Ph.D.  
January 6, 2003

  
WILLIAM KORZUCH  
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